



## **A reconstruction of the Atlantic Multidecadal Oscillation (AMO) for the last 1200 years**

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Sea surface temperatures (SSTs) in the North Atlantic Ocean show multidecadal fluctuations known as the Atlantic Multidecadal Oscillation (AMO). The AMO has been related to the thermohaline circulation, which implies a strong association to large-scale climate variability. Indeed, the variability of a wide range of climate parameters in the North Atlantic region has been related to the AMO, e.g. temperatures, precipitation, drought and hurricanes. Moreover, the AMO seems to influence the Asian summer monsoon, and South American precipitation. Most of these relationships have been established analyzing the short observational records or from experiments with climate models. In order to establish the stability of the multidecadal oscillation in the AMO as well as the association with climate, it is necessary to extend the record further back in time. Using tree-ring data from the Northern Hemisphere a reconstruction of the AMO, spanning AD 800 to 2000 is presented. The reconstruction suggests anomalously warm North Atlantic SSTs from ca. AD 900 to 1050, coinciding with the “Medieval Warm Period”, as well as a phase between 1100 and 1400 with relatively little interdecadal variability. There is a prolonged negative phase of AMO from ca. 1600-1860, i.e. during the “Little Ice Age” (LIA). The multidecadal variability of approximately 40-80 years remains constant throughout the record, except around ca 1500-1700, i.e. during the LIA, when it breaks down.